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TESTS FOR THE INSUFFICIENCY OF THE RECTI INTERNI MUSCLES.

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Since Graefe's last paper on Muscular Asthenopia, published in the *Archiv* in 1862, very little has appeared in literature on insufficiency of the recti interni muscles. The methods of examination, the tests for the determination of its degree, and the modes of treatment, are essentially the same as those instituted, at that time, by this celebrated author.

These methods, as is well known, are four in number, and consist of the following experiments:—

1. The gradual approach of a small object towards the eye, the object always remaining in the median line and a little below the horizontal plane.
2. This test is but a modification of the first, and consists in interrupting the act of binocular vision by interposing a screen between the approaching object and one of the eyes.
3. This consists in interrupting binocular single vision by means of prisms.
4. The determination of the power of adduction and abduction.

In these four experiments or tests, or even in the last two alone, we have, to use Graefe's own words, "a completely exhaustive" method, not only for the determination of the diagnosis of insufficiency of the interni, but also for the exact measurement of its degree.—(*Arch.*, B. 8, ii. p. 328.)

It is for the purpose of ascertaining whether the above statement is correct that I propose to call attention to a brief consideration of the tests upon which the above statement is founded.

The first test depends on the fact that normal eyes are, as a rule, enabled by the power resident in the recti interni muscles to make the visual axes intersect each other in the median line at three inches distance from the eye. Eyes which cannot make their visual lines intersect at five inches are supposed to be wanting in converging power. This deficiency shows itself, as is the case in all overtasked muscles, by a relaxation, either partial or complete, of the preëxisting tension. In the present case, the overtasked internus yields, and the eye deviates outwards. Graefe characterizes this as the coarsest and least to be depended upon of the above-mentioned tests. To a certain extent this is true, for there are many cases of undoubted insufficiency of which this test would not give the slightest indication. Still, when the deviation does occur at the usual distance for near work, or even a little within this, it is one of the most reliable of all tests, affording, as it does, conclusive proof of muscular insufficiency, and offering, under ordinary circumstances, the surest indication for the performance of tenotomy over other methods of treatment.

There are several conditions which may affect the accuracy of this test, but as all these are also incident to the second, which is in reality but a modification of the first, they will be considered, in order to avoid repetition, under that heading.

The second test, that of interposing a screen between the object viewed and the eye, is considered by Graefe as much more delicate and therefore more efficient than the preceding. The principle on which it acts lies in the fact that, as soon as the act of binocular vision is interrupted by one eye being covered, the necessity for undue muscular tension, by which this was obtained, is removed, and the eyes are left at liberty to assume that degree of convergence which can be obtained without undue effort, that is to say, a position where the equilibrium between the recti interni and externi is perfect.

In estimating the value of this test, two principal questions arise:—1. Does the fact that one of the eyes deviates behind the screen necessitate the conclusion that an abnormal amount of tension had previously existed for a given degree of convergence? 2. Cannot such undue tension exist without such deviation? With regard to the first question, no one who has been in the habit of accurately determining the refraction and the condition of the muscular apparatus of all classes of cases which present themselves, can have failed to notice that a deviation of one eye will often occur as soon as this is covered by the screen, while at the same time the patient is free from all asthenopic symptoms, and when, too, no insufficiency can be brought forth by the tests now in use. As corroborative of this, which I know is at variance with the recognized opinion, and for the sake of brevity, I would refer to an example.

A young man, of robust health, presented himself at our office with a slight conjunctival trouble. Being aware that such affections are often due to faulty refraction or muscular insufficiency, a careful examination as to both these conditions was made. The refraction was found to be emmetropic, and the accommodation of normal dimensions. As soon, however, as a screen was placed before one eye, while the object was gradually approached to six or eight inches, the eye which was covered immediately fell off to a considerable degree. So conspicuous was this I at once imagined that insufficiency was the cause of the conjunctival trouble. On questioning the patient, who was then in college and compelled to do a large amount of close work daily, I found that he had never till the present time had the slightest inconvenience from his eyes; nor did he now complain of any asthenopic symptoms whatever. On this account, I was led to examine the condition of the muscles more closely. The patient was able to converge with apparent ease, and maintain it, up to three inches from the eye. The double images produced by prisms were in the same axial line, even when the card with the vertical line and dot were moved up to the patient's nearest point of binocular vision. A lighted taper, with the colored glass, gave the same result. The amount of adduction and abduction was found to be of normal quantity and proportions, the equilibrium between the muscles being perfect for all degrees of convergence. The conjunctival trouble soon passed off, but the eye still deviated behind the screen, and no insufficiency could be brought forth. I have seen many other precisely similar cases. Why some normal eyes, with normal muscular force, deviate behind the screen to a very perceptible or even considerable degree, when binocular vision is interrupted, I will not attempt to explain. Of the fact I am, however, fully convinced.

With regard to the second question, whether undue muscular tension can exist for a given degree of convergence without deviation of one eye when binocular vision is interrupted by a screen, it will be only necessary to state that all authorities agree that it may; and to call to mind the fact that it was on this account that Graefe proposed other and more certain methods of examination.

There are, however, one or two conditions which would seem to have a tendency to prevent the deviation above alluded to, which I think are worthy of more consideration than has been usually granted to them. The intimate relation between convergence and accommodation has been long known, and in the present connection plays a significant part. For if, in a given case, the accommodation, especially the relative accommodation, is so much reduced that it can only be adjusted for a near object by an undue effort, this undue muscular tension on the part of the ciliary muscle is then also shared in by the interni, and thus the visual axes are forced to maintain the required degree of convergence, and no deviation can occur as long as the object is seen distinctly. As the demands on the ciliary muscle are greater in hypermetropia and presbyopia than in other conditions, it is precisely here that this resistance to deviation would be most marked. As is well known, the proportion between the amount of muscular power held in reserve and that actually used by hypermetropic eyes decreases as the object approaches the eye, so that in the neighborhood of the binocular near-point the tension on the ciliary muscle is either very near or even at its maximum. Now under such conditions, if the interni are normally strong, the moment one eye is covered, the natural tendency is for this to turn in, sometimes to a considerable degree, which shows that at the same time that the ciliary muscle was making undue efforts the interni were also. Now, allowing the same conditions to exist with weak instead of strong interni, there will then be the same increased tension demanded of the ciliary muscles and participated in by the interni, only what was sufficient under normally strong muscles to turn the eye inwards, in the case of the weakened ones will be only sufficient to maintain the given degree of convergence; or it may not be enough for this, and then the eye covered will deviate outward to a trifling degree, but not enough to lead to the supposition of any abnormal insufficiency. Thus an insufficiency in hypermetropic eyes, which may be capable of producing asthenopic symptoms when the occupation is maintained for a certain time, may be entirely masked for the moment of the examination, even when the object is brought within the customary point for near work. A conspicuous example of this occurs to me. A patient with well-marked asthenopic symptoms presented himself. Hm was found to be equal to $\frac{1}{18}$. $V = 1$. Accommodation somewhat limited. If a pencil was advanced in the median line while one eye was covered with a screen, as soon as the pencil had approached to sixteen inches from the eye, the patient's point for near work, the eye which had been covered deviated outwards in a marked degree. If, however, the pencil was carried to eight inches, instead of sixteen, no deviation took place. If it was moved still nearer, for example four inches, the eye which had in the first place deviated outwards finally turned inwards; so that, under the effect of increased accommodative efforts, what was in the first place latent divergent became latent convergent strabismus.

The phenomena mentioned above also often take place in presbyopia, and I see no reason why they should not in any case where the demands on the accommodation from any cause, such as debility or paresis, were excessive.

The effect of accommodative efforts is not without importance in the insufficiency of myopes. The difference in the degree of deviation when the M is neutralized by glasses, thus compelling accommodative efforts for the near, is oftentimes very marked; and I cannot help thinking that the important service which suitable glasses may be made to render towards preventing that tendency to deviation which myopic eyes often show, has been much overlooked, or at least much underrated—a tendency which has its origin as much, especially in young children, in a desire to remove as much as possible the far point, by an entire relaxation of the accommodation, by means of decreased convergence, as in any inherent weakness of the interni muscles. It is certainly as far from the natural order of things for myopes to use a maximum amount of convergence with a minimum of accommodation, as it is for hypermetropics to use a large amount of accommodation under small degrees of convergence.

Since, then, the eye may deviate behind a screen when no want of muscular power can be shown to exist, while, on the other hand, insufficiency may be proved to be present and yet no deviation occur, it would seem to follow that this test with the screen is not sufficiently reliable for an accurate diagnosis. While from the fact that it is extremely difficult to measure accurately with the eye small deviations, Graefe has proposed the last two tests, which he has characterized as "infinitely better, and, with regard to the diagnosis, entirely exhaustive."

The first of these tests is the well-known one of double images produced by interrupting binocular single vision by means of prisms. The principle on which it acts depends on the alleged fact that as soon as the act of binocular single vision is interrupted, voluntary control over the muscles governing the act of binocular vision is lost, and the eyes are then at liberty to follow the muscular tendency, which they do by assuming a position at which the muscular equilibrium is perfect. If, then, in order to obtain and maintain a certain degree of convergence a patient is using undue muscular efforts, it follows that such efforts must cease as soon as the power to make them is removed. The only question then is, does the test really remove—and remove completely—the ability to bring into action any excess of muscular force over and above that which is represented by a perfect equilibrium between the external and internal recti muscles, which must be considered the normal condition for all degrees of convergence? If the test fail to do this completely, or even in part, it is manifest that the term "completely exhaustive" cannot be justly applied to it. While admiring in the highest degree the great ingenuity and beauty of the test, as well as its efficacy as a rule, I cannot help thinking that more exceptions exist as to its infallibility than we should be led to suspect from the representations of one whose views on ophthalmic matters are now universally and justly looked upon almost as laws. That the interruption of binocular single seeing does not necessarily remove the control over the muscles governing the act of vision can be readily demonstrated.

If I place a prism over one eye in the manner suggested by Graefe, while the card with a vertical line and dot in the centre is placed before me in the median line, I then get the appearance of two dots on one vertical line, the dots remaining on the line from any distance up to that of the nearest point of binocular vision. This proves, according to Graefe's law, a perfect equilibrium between the recti externi and interni muscles. If the card is then placed at twelve inches from the eye (the two two dots still remaining on one line), I obtain, by relaxing the tension on the interni, crossed images, the two lines, each with a dot in the centre, being then separated laterally to a considerable degree—35° as measured by prisms. By exercising a little voluntary effort, I can make the secondary image, that proceeding from the deviating eye, gradually approach the primary, that coming from the fixing eye—till the two blend together, giving the appearance with which we started, of two dots on one line. By a little further exercise of muscular force, I can make the secondary pass to the other side of the primary, thus obtaining at will either crossed or homonymous images; or, in other words, a perfect equilibrium, an insufficiency, or a preponderance of muscular force in the interni, thus proving that the control over the muscles is not necessarily removed by interrupting the act of binocular single seeing. If the control over the muscles remains in one case, notwithstanding the test for preventing it, why may it not in another? Why may not that voluntarily called forth excess of muscular contraction which enabled me to produce homonymous images, or an abnormally increased convergence, be called forth by another in maintaining a right intersection of the visual axes? Why could not an undue effort at muscular contraction be made by weakened interni as well as by strong, which would just suffice in the case of the weak muscles to maintain the balance, while in the case of the strong the same effort would be capable of producing a preponderance of muscular tension?

But it may be alleged that this faculty has been acquired by practice, so that the tension of the interni can be varied at will, just as that of the ciliary muscle, when the accommodation is either voluntarily increased or lessened. In my own case it may be the result of practice, but I have often seen patients endowed with the power of thus voluntarily varying the tension on the interni, when binocular single vision is interrupted by a prism with the angle up or down.

As an example of this, as well as an illustration of some other important points, I would refer to the following briefly stated case.

A middle-aged gentleman visited us with the complaint, that for several years past he had suffered a great deal of pain in his head, accompanied with a gradually increasing disability to use his eyes. An examination revealed a large amount of insufficiency of the recti interni. The pain and inconvenience which the patient suffered were consequently referred to this cause, as his eyes seemed otherwise perfectly normal. Two things, however, militated against this opinion: one was that the pain in his head had existed a long time previous to the affection of the eyes; the other was that from boyhood the patient had been able to "see double" at will, unaccompanied, however, by any inconvenience for near work; while at the same time, although the insufficiency called forth by the usual tests was very great (18° for the far, 32° for the near), still the degree of convergence which the patient could maintain was fully equal to the normal amount, the interni not yielding when the object was approached even to four inches.

As, after a careful examination, no other symptom of cerebral or spinal trouble could be detected than the pain alluded to, the opinion was advanced that the cause of the patient's inability to use his eyes, as well as the great pain in the head, was to be referred to the weakened condition of the recti interni muscles. As there was some doubt with regard to the matter, it was thought advisable that the patient's general health, which was somewhat reduced at the time, should be recruited before resort was had to an operation. A pair of strong prisms was, however, given for near-work. After travelling for six months, the patient returned, his general health much improved, but the same trouble still existing in the eyes, though he said he had experienced some relief from the prisms. Another examination showed the condition of the interni to be about the same as had the previous one. The externus of the left eye was now divided. Three days after the operation, the insufficiency had sunk from 18° to 7° for twenty feet; from 32° to 10° for twelve inches. A week later, the right externus was cut, and the subsequent examination showed that only 2° remained for twenty feet, while the patient could hold the two images in the same axial line from the distance (20 feet) up to his binocular near-point.

The patient then made a visit to Philadelphia, and while there at our instigation saw Dr. Dyer. Dr. Dyer's examination, made only one month after ours, revealed 15° of insufficiency for twenty feet, and 20° for twelve inches. Surprised at the discrepancy between Dr. Dyer's examination and my own, I then made another, and found that the patient could hold the two images in the same vertical axis from twenty feet to four inches—that he could not only hold them so at twenty feet, but could even produce homonymous images equal to a prism of 10°; while, on the other hand, he could, by a voluntary effort, produce a divergence of the visual axes equal to a prism of 16°. This explained the difference between Dr. Dyer's examination and my own. At twelve inches, the patient could produce at will either crossed or homonymous images. In other words, he seemed to have perfect control over the muscles governing the common act of vision, notwithstanding the fact that binocular single vision had been interrupted by means of a prism.

The first question which now arises is, can a person who can call forth homonymous images of a considerable degree (under a prism angle up or down) at twelve inches, and whose adduction from that point amounts to nearly 40°, and whose abduction only 24°—can such a person suffer from insufficiency, and are we justified in further operative interference, even if crossed images can be produced of 20° for the near, especially as an exhaustive examination revealed the fact that, notwithstanding an apparently normal amount of total abduction still remained, the power of the left externus had been considerably impaired? A morbidly candid person might ask still another, viz., was any operative interference at all necessary, notwithstanding the fact that 18° for the far and 32° for the near of insufficiency could be produced? The question is saved at least from being ridiculous, by the fact that the condition of the eyes and head, after two operations, was but little if at all improved.

In estimating the correctness and value of von Graefe's tests, the facts attending the determination of the *degree* of the insufficiency are of great importance, as they help us materially in determining the question whether the control over the muscles is lost when binocular single vision is interrupted.

The amount of insufficiency in a given case is measured, as is well known, by that prism which with its base inwards brings the two images, separated laterally, into the same vertical axial line. If the angle of the prism required to do this amounts to five, ten or fifteen degrees, we say, according to Graefe's method, that there is an insufficiency of 5°, 10° or 15°, and so on. The question now is, is it true that that prism, which reduces crossed images to the same vertical line, expresses the amount—and the whole amount—of the insufficiency? There can be no doubt that it often does; but on the other hand we believe that there are cases, and these by no means rare, where it fails to do this. The reasons for this belief will be better and more briefly given by an example.

Suppose a person suffering from asthenopia to have crossed images, which are reduced to vertical by a prism of six degrees. By the means of such a prism we have restored the want of power previously existing, and have thus made the eye equal to the normal organ, in which the equilibrium between the internal and external recti muscles is perfect. If, now, the equilibrium *is* perfect (and that it is so is claimed from the fact that the two images remain in the same axial line), then, if we add any more prisms with the base inwards, we shall destroy the equilibrium, and the images which remained vertical under the first will become homonymous as soon as the other prism is added; or, in other words, as soon as the insufficiency is overcorrected. This, it is true, is often the case, but by no means the rule: for we often find that even after we have brought the images from being crossed into the same vertical line, we can go on adding prisms, sometimes those of a considerable degree, and yet the images remain exactly over each other, instead of becoming homonymous, as would be supposed from the principles of the test. If the first prism corrected the insufficiency, why did not those which were subsequently added overcorrect it? Suppose to the six degrees which made the image vertical we added successively a prism of 2, 3, 4 degrees, before the images left the vertical axial line—that is, began to grow homonymous. The original prism amounted to six degrees, the sum of those added amounted to nine; now, is the insufficiency only six degrees, or in reality fifteen? Or, in other words, are we to consider the weakest prism which will produce vertical images from crossed, or the strongest one under which the images remain vertical, as the true measurement of the degree of insufficiency?

I have been in the habit of looking upon this gradual yielding of the interni under prisms as latent muscular force, strongly analogous to that incident to the ciliary muscle in hypermetropia, and hence for want of a better term, I have been in the habit of applying the name of latent insufficiency to that degree of prism which can be added without rendering the images homonymous, over and above that degree which renders crossed images vertical. I cannot see why that which takes place with the ciliary muscle should not also take place with the interni, nor understand why these latter should not refuse, like the former, to relax suddenly a certain amount of tension, to the exercise of which, abnormal though it may be, they have been accustomed.

I have been led to this view from the frequency in which this so called latent insufficiency occurs, and from the predominance which it assumes in many cases over what, in contradistinction, may be called the actual insufficiency. It often amounts to double, sometimes even to three times the actual, and may exist to a considerable degree, even where no actual can be proved to exist, as the two following examples will show.

Two well marked cases of asthenopia presented themselves. A careful examination under atropine failed to reveal the slightest cause for the asthenopic symptoms. When the patients were subjected to Graefe's test, the two dots remained on one line up to the binocular near point. The same result followed when the candle and colored glass were used. This would prove according to Graefe a perfect equilibrium of the muscles. If, however, in addition to the prism placed angle upwards, a second was added with the base inwards, the images still remained on the same vertical axial line, and did not become homonymous, as would be naturally supposed, till the angles of the prisms added, in the one case amounted to 16°, in the other to the enormous amount of 24°. It seems to me that such cases (of which the above are but examples of what often occurs in a less degree) place us in a dilemma in regard to the easy and accurate diagnosis of insufficiency. If there was insufficiency why did not the test show it? If there was no insufficiency and the equilibrium of the muscles was perfect, how does it happen that a prism of 24° can be added without destroying this equilibrium? It can only happen in one way, and that is by a counter balancing exercise of muscular tension by the patient, proportionate to the degree of the prism added. But it is precisely this exercise of muscular tension on the part of the patient which the test claims to prevent, and upon which fact its sole virtue as a test depends.

I have alluded to this matter of latent insufficiency because I have thought that its existence might explain some points of practical importance. Might not the reason why, after having corrected a certain amount of insufficiency by means of prisms, we find later that the amount of insufficiency has increased, depend on the fact that the interni under the influence of the prisms have relaxed to a certain degree their tension, so that a certain amount of insufficiency which had been previously latent has become manifest; just as in the case of the ciliary muscle, what had been latent becomes under glasses manifest hypermetropia? May not this also hold good in regard to tenotomy, and explain to a certain extent the difference in effect which ultimately follows an operation?

The fourth test, which is in fact but the complement of the preceding, consists in determining by means of prisms the amount of adduction and abduction, or, in other words, the amount of muscular force resident in the recti interni and externi muscles.

This amount of adduction and abduction is measured by the strongest prism which, with its angle respectively inwards or outwards, can be overcome without destroying binocular single vision. The absolute amount of this voluntarily produced muscular force varies so much in normal eyes, that little dependence can be placed upon it as a true estimate of the actually existing muscular power; but when taken in connection with the other tests, it offers valuable assistance in determining the necessity for, or at least the limits of, operative interference. All of this, however, is so clearly and fully laid down in the paper so frequently quoted in these remarks as to make further comment upon it superfluous. There are, however, one or two conditions which influence the amount of muscular force as obtained by prisms, and which might, if not properly taken into consideration, lead to erroneous results.

As is known, the proportion in emmetropic eyes between the adduction and abduction is for the average distance of near work certainly as high, if not higher, than 3 to 2. As, however, we approach the binocular near point the amount of abduction rises till it equals or surpasses the adduction.

In non-squinting hypermetropic eyes, however, we often find that in the immediate neighborhood, or even at the nearest point of binocular vision, there is no abductive force at all, while at the ordinary point for near work there is an absolute insufficiency of the *externi*, which shows itself by homonymous images, and this, too, often times without binocular single vision being interrupted by a prism with the angle upwards or downwards. This fact led Giraud Teulon to express the belief that, there is the same inherent tendency in hypermetropic eyes towards weak externi that there is in myopic eyes towards weak interni, the original cause of which I believe, however, to be connected with the accommodation.

This want of abductive force may be either actual or apparent. If actual, it depends on some want of power in the muscles themselves, and may be occasioned in three principal ways:—

(1.) Through an abnormal preponderance both of volume and force of the recti interni over the externi, which may in themselves be below the normal standard. This condition is generally inherited from parents who have themselves squinted, and in whom, in consequence, the interni have become from constant exercise unduly developed, while the externi, from want of use and from being constantly on the stretch, have lost both volume and vigor.

(2.) From faulty insertion of the muscles, on account of which the interni have the preponderance of power.

(3.) From a state of debility, either temporary or permanent, which has been developed by a constant straining on the part of the externi in order to maintain binocular vision, while the eye is calling forth its accommodation in order to neutralize the error in refraction.

This latter depends on the intimate relation which exists between convergence and accommodation, and which has been more fully dwelt upon in the earlier part of these remarks.

It is evident that in these cases where there is inherent weakness, be it natural or acquired, in the externi, the correction of the error of refraction, though it may give relief, will not remove the whole cause of the trouble; and this is one of the reasons why some hypermetropes, even when provided with suitable convex glasses, still continue to suffer from asthenopia.

Instead, however, of being actual, this insufficiency of abductive force may be only apparent. When it is so, it is due entirely to the efforts of the accommodation to overcome the error in refraction, and disappears as soon as this is corrected by glasses. This will be better explained by an example.

A patient has Hm $= \frac{1}{16}$, Ht, as estimated by the ophthalmoscope, between $\frac{1}{10}$ and $\frac{1}{12}$. If the condition of the muscles is examined at twelve inches from the eye without the hypermetropia being neutralized by glasses, then the amount of adduction is found to equal a prism of 20°, while the abduction amounts to only 4°. But if the error of efraction is corrected, then the amount of raduction rises to 15°, while the adduction in this particular case undergoes but little change. It is, as a rule, however, slightly decreased.

This shows that the disproportionately low force of abduction is due in this and similar cases not to any idiopathic weakness of the muscles themselves, but to the fact that the nervous impulse, by which the ciliary muscle is able to overcome the error of refraction, is propagated to the interni, which thus throws the balance of power in their favor, and gives them, as long as accommodative efforts are going on, the preponderance of force. From which it follows, that the tension on the interni can only be relaxed in these cases by relaxing that of the ciliary muscle. This, as a rule, the unaided eye refuses to do, for the reason that distinct vision would have to be given up. When, however, the hypermetropia is completely neutralized, the undue tension on the ciliary muscle is removed, and, as a consequence, that on the interni. The abnormal resistance which these latter offer to the action of the externi is thus removed, and these muscles are then left at liberty to bring forth their power in order to maintain binocular single vision, as soon as this is threatened by placing prisms before the eyes with the angle outwards.

It often happens that the effect of glasses in increasing, at least to its fullest extent, the abductive force in hypermetropic eyes, is not always obtained at once, even in cases where the externi are not idiopathically weak. It often takes some little time for the eyes to give up the exercise of a certain amount of tension, the employment of which habit has rendered intuitive.

The above is also applicable to presbyopia, or in fact to any other condition which necessitates undue accommodative efforts.

It will be seen that in the foregoing remarks some doubt has been expressed, not so much as to the merits, as to the infallibility of the tests now in use. This has been done simply with the view of calling attention to a subject which, from the abuse of eyes, now universally prevalent, is daily becoming, at least in this country, a matter of increasing importance.

The total funds of the Medical and Hospital Department of the U. S. Army for the fiscal year ending June 30, 1868, amounted to $3,230,400.47. The disbursements during the fiscal year amounted to $1,756,608.27. Balance in the Treasury and in the hands of disbursing officers, $1,473,792.20.

Hospital Reports.

BOSTON CITY HOSPITAL.

Notes of Cases treated during the Month of August, 1868.
Reported by J. H. McCollom, House-Surgeon.

Case I.—*Compound Fracture of the Internal Condyle of Humerus ; Amputation.* (Service of Dr. Thaxter.)—C. W., aged 12. Two hours and one-half previous to entrance to Hospital on the 16th of July, while the patient was playing on the car track, she fell and was run over by a horse car in rapid motion. As nearly as the girl could report, she fell along side the rail in the same direction with the car, and the wheel struck her right arm above the elbow, lacerating the tissues and injuring it otherwise as follows: a triangular section of the integument was cut cleanly from the inside of the right arm, extending from the olecranon upwards a distance of five inches ; the apex was at the elbow, and the width of the wound at its broadest part was three inches. The internal condyle was fractured at its base ; the fragments separated and comminuted. There was no positive evidence that the joint was opened ; its motions were free. The soft tissues were extensively lacerated, both under the exposed surface and beneath the skin in the adjacent regions. The integument was dissected downward along the anterior aspect of the forearm a distance of four inches. Upon the outside of the arm, three inches above the external condyle, was an opening admitting the tip of the little finger. There had apparently been no very profuse hæmorrhage, and at the time of entrance there was none at all. There was very slight shock. Pulse 96.

After an examination under ether, Dr. Derby, the surgeon in charge, decided to amputate. The parents of the patient, however, refused to allow this, and the privilege of waiting until they were convinced in their own minds of the importance of the amputation was given them. The arm was adjusted in an internal angular splint, and cold-water dressing applied to the wound.

July 17th.—Comfortable. Slept well. No change in the appearance of the wound. No hæmorrhage.

18th.—Continues comfortable. Pulse 96.

19th.—Commencing suppuration, with slight redness of the skin along the edges of the wound.

23d.—Surface of wound begins to have a sloughy appearance, and the edges are quite red. Appetite good. Very little constitutional disturbance.

27th.—Deep fluctuation at outside of elbow, with redness externally. Incised, and about two ounces of pus evacuated. Poultice.

29th.—The wound is covered with a thick, pultaceous slough, with an unhealthy discharge ; its edges are everted and yellowish. From this time until the 2d of August, the patient began to lose her appetite and strength quite rapidly. She complained much of pain. Hectic fever commenced, and for two days the patient was in a very critical condition. The consent of the parents was at last obtained, and the operation was performed on the 2d of August, by Dr. Thaxter.

The patient was slowly and carefully etherized, and the arm amputated at the middle third by the circular method. The artery was controlled by digital pressure. The hæmorrhage was slight. Six vessels were tied. The flaps were approximated by four silk sutures.

The condition of the patient began to improve immediately after the operation. She made a rapid recovery, and was discharged, well, in about four weeks.

Case II.—*Removal of Epithelial Disease from the Face.*—D. M. The patient, a robust man of 85 years of age, has a large tumor on the left side of the face, at about the centre of the malar bone, which, he says, first made its appearance as a pimple four years ago. The growth has not been very rapid until the last six months, during which time the tumor has increased in size more than during all the previous time. It resembles in shape a mushroom, and is about one and a half inch in diameter, and projects from the surrounding tissues three quarters of an inch. The tumor extends to the orbital plate of the malar bone upwards ; to within half an inch of the angle of the mouth downwards ; and in a lateral direction from the centre of the left zygoma to the nasal cartilage. The surface is ulcerated, and at times there is quite a smart hæmorrhage from it. The malar bone does not seem to be implicated, and the disease does not extend into the inside of the mouth. If the statement of the patient is to be taken, the growth has not been uniform, but in a lateral direction, commencing, as he says, on the outer portion of the cheek and extending inwards towards the nose.

The patient was etherized. An incision was made at the upper and inner portion of the tumor, and then extended completely around it. The diseased mass was carefully dissected from the surrounding tissues. Hæmorrhage was quite brisk during part of the operation from a number of small muscular branches of the facial artery. Five vessels were tied. The oozing was controlled by ice and pressure. The edges of the lower portion were approximated by three silk sutures; the upper portion was left open. Cold water dressing applied. Two days after the operation the patient complained of pain and some difficulty in micturition, due to an enlarged prostate gland. This was the only constitutional symptom that was present during the time the patient was under treatment. The wound healed rapidly by granulation, and when the patient was discharged from the Hospital, sixteen days after the operation, there was only a small granulating surface, half an inch in diameter, near the centre of the face. With the exception of the first three days, the wound was dressed with liq. sodæ chl. ℥iii., aquæ Oi.

Case III.—*Compound Comminuted Fracture of the Humerus; Amputation.*—J. O., aged 30. Two hours before entrance, as the patient was attempting to get on the front platform of a horse car, which was in motion, he fell and the wheels passed over his arm near the elbow, causing a compound comminuted fracture of the humerus in the lower third. There was also a lacerated wound extending from about two inches below the axilla to one inch below the inner condyle of the humerus. The muscles were much torn and bruised; the artery was lacerated; but there had been but little hæmorrhage, and that was mostly venous in character. Several loose pieces of bone were removed from the wound. The general condition of the patient was quite good, considering the severity of the injury. Pulse 88, and of fair strength. At the time the patient received the injury he had been drinking, but his friends say that he was not intoxicated. Amputation was decided to be imperative. The patient was etherized and the arm amputated at the upper third by transfixion. The artery was controlled by digital pressure in the axilla. Ten ligatures applied. The flaps were approximated by seven silk sutures. At the end of the operation, the patient was in a very feeble condition, and was stimulated with enemata of carb. of ammonia and brandy. The patient improved rapidly both as regards wound and general condition for eight days, when without any assignable cause he had an attack of erysipelas, which lasted nearly five days. The stump had a very unhealthy appearance, and commenced to slough at one point; this, however, did not extend deeper than the skin. The treatment during this time was stimulation, good diet, and two grains of the sulphate of quinine three times a day. The wound was dressed with carbolic acid ʒiss. to water Oi. A fortnight later the patient had another attack of erysipelas, rather more severe than the first, and also, at this time, there was some sloughing of the skin. The whole stump was much swollen, very tense and quite painful. Free incisions were thought to be demanded at one time; but were not made, as the condition of the stump began to improve soon after, and gradually the swelling and induration disappeared. From this time the cure was rapid and uncomplicated. The ligature on the brachial separated in about six weeks, the other ligatures much before this time. The stump was entirely healed nine weeks after the operation, and the patient was discharged in good condition, having improved much in health and flesh the last few weeks of his stay.

Reports of Medical Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

CHARLES D. HOMANS, M.D., SECRETARY.

Oct. 12th.—*Probable Acute Tuberculosis; Terror apparently the immediate Cause of Death.*—Dr. Cotting reported the case.

Miss A., aged 26, of nervous temperament, was subject to bronchial irritations. During last winter, she was quite well, but in early spring had bronchitis, from exposure to cold and snows, yet not obliged to take to her bed. She spent the summer in the country with friends, and returned about two months ago. She had been well, except for occasional bronchial discomfort. She had great dread of consumption, but passed for a person in full health. On the 29th and 30th of September, a widow visited at her father's house, and in these two days detailed the minute particulars of the sickness and death of her husband by consumption. On her departure, Miss A., who had been an attentive listener, solemnly told her mother that her own case was a desperate one; and they agreed, for the daughter's satisfaction, that she should go into town and have her chest examined by an old friend and occasional medical attendant of the family.

Oct. 2d, went in horse cars, and walked a half mile or so to the physician's residence. She was greatly disturbed by the examination and fainted; yet she shopped a little before returning home in the cars. A second examination (the first not being satisfactory to the physician) was made at her residence, Oct. 4th.

Dr. C. saw her Monday, Oct. 5th. She was just from a warm bath—sombre and taciturn. She now and then said, with great solemnity and emphasis, that she *was going to die!* She was *sure* of it! and in the most pitiful implorings begged for something to *save* her.

She would not listen to any attempts to reassure her; her mind was made up! Neither would she allow of any further examinations—"they could do no good"! At this time her pulse was accelerated, but her respiration easy and quiet. She had slept but little since Sept. 30th—none the last night. The use of bromide of potassium was advised.

Tuesday, Oct. 6th.—According to report, she had no sleep the previous night—constantly getting up and wandering about the room, imploring aid to save her from her impending fate. At visit, she was sitting on a sofa, with a perfectly maniacal expression of face and manner. In every movement there was an appearance of the greatest terror. Now and then she demanded piteously of her parents something to save her life, expressing great horror at the idea of being *carried away*. She would not allow any approach for further examination, which she said had already done her great harm. At noon, she went to table for lunch, was more rational and somewhat cheerful. In the afternoon, she took a short ride with her father.

Wednesday night, was more distressed in mind and body than previously. No sleep; pulse 120; respirations 40, wheezy and labored (as counted by the parents); coarse râles heard at the bedside.

Thursday, 8th, was similar to previous days, except that all the symptoms were intensified; respirations 50. Some lividity in extremities. She "would take anything to *save* her"; nothing for any other purpose. She disposed of her personal effects, left remembrances to particular friends, and made suggestions as to the disposal of her body, &c.

Friday, 9th.—Pulse exceedingly rapid and feeble. Resp. short (probably 60) and labored. Skin generally livid. Repelled any attempt to touch her, saying "examinations have killed me!" &c. Outside the room, she was heard to exclaim in a voice loud enough to be heard over the house, as in extreme terror, "I'm afraid!" This was often repeated during twenty-four hours. A little while after, she left messages for her friends, took leave of her parents, and died, without a struggle, at 3 o'clock, P.M.

Dr. Putnam, the physician who had examined her, read the following notes of the results of auscultation, &c.

"On first examination, loud sonorous râles over both backs, but especially on right. Was obliged to stop examination, on account of faintness. Two days afterwards, the same sonorous, with a few mucous râles, were found on the right back. On the left back, râles of the same character, but very much less. Respiration on the right back noisy, as if supplementary. On the left back, respiratory sound rather feeble. No bronchial sounds nor modification of the voice at either apex or elsewhere. Percussion good on right; on the left deficient; nowhere positively dull. Pulse 130–140, full, hard. Countenance expressive of great anxiety and agitation of mind.

"It was a question whether these signs were owing to transient irritation or congestion of the small bronchial tubes, or to tubercular condensation, but the degree of dulness on percussion, with diminished rather than coarse respiration, together with the rational signs, indicated tubercular disease rather than capillary bronchitis. These modifications in percussion and respiration were the more important from the fact of their being found on the *left*, where, ordinarily, the resonance and expansion are comparatively greater than on the right back. I am not aware that the observation has been made by writers, but in a great majority of cases I have found the normal respiration at the lower third of the left back to be decidedly louder than at the corresponding part of the right."

Oct. 26th.—*Effect on Man of Residence at great Heights above the Level of the Sea.*—Prof. Robert von Schlagintweit, of Giessen in Hessen, present by invitation, who had travelled extensively in the most elevated regions in Asia, made some remarks on the sensations of man at a very great height above the level of the sea, whether these heights were reached in balloons or by ascending high mountains. There is a height above which human life is impossible; in a balloon Mr. Glaisher fainted when 32000 feet above the level of the sea; probably no man could live at an elevation greater than 34—36000 feet; this will however depend much on the state of the atmosphere, the idiosyncrasies of individuals, and the habit of living in high places. The Professor himself, on first reaching an elevation of 17—18000 feet, felt great inconvenience and distress, but at another visit was not much affected. People living at a moderate elevation, on going higher suffer full as much as the unaccustomed traveller. In "High Asia" the effects of elevation are shown by headache, hæmoptysis, dyspnœa, anorexia, muscular debility and low spirits, all increased at night, and at times everyone gasps for air, apparently in vain; moments occur when every one believes that he must inevitably be suffocated. In day time epistaxis may occur, but if the nose is not too much irritated it seldom occurs. He had never seen bleeding from the eyes, lips or ears. All these symptoms disappear as soon as one begins to descend. In the Andes it is said besides these symptoms are also intense headache, swoons, bleeding from the nose, lips, gums and eyelids, especially the tunica conjunctiva. The height at which these symptoms come on among the Andes is not nearly so great as in High Asia; in the latter country being not below 16,500 feet, while in the Andes the effect of height has been repeatedly felt as low as 10,700 feet, lower than anywhere else. No satisfactory explanation of this fact has yet been given; Prof. S. thought it might be owing to the different geological construction, but the existence of volcanoes in the Andes would not wholly account for the difference. In balloons symptoms do not come on till a much greater height is reached, bodily exertion rendering one much more likely to suffer; in a balloon the passengers keep perfectly still, any exertion at a great height causing intense depression and greatly heightening the pulse. Cold does not increase the intensity of the suffering, but wind decidedly. One could stay for days at heights of 16,500 feet and not suffer during the first portion, but at evening a breeze usually sprung up, rendering every one sick; in the morning the appetite came back and the bad symptoms were gone. The effect of great heights is influenced by the state of the atmosphere (which is always better in the morning than in the evening), the existence of wind, or clouds, or electricity. There is a great decrease in the atmospheric pressure, the barometer at the height of 22,259 feet showing only 13$\frac{3}{10}$ inches. In High Asia, at a height of 18,600 or 18,800 feet, the atmospheric pressure is one half of that at the level of the sea. These symptoms, which all are liable to in great heights, prevent human beings from living there, even if all conditions are at hand for their thriving well.

In none of the pastures in Thibet is the height greater than 16,320 feet, and they are only used in certain portions of the year. A French author, Paul de Carmoy, has described a village in the Peruvian Andes, named Pueblo de Ocoruro, at a height of 18,454 feet, whose inhabitants spend all the year there, but from his own experience Prof. von Schlagintweit thinks this impossible; Carmoy's statement rests either on an erroneous observation or on a wrong measurement; he has probably mistaken a transitory settlement, only inhabited for a few days, for a permanent abode.

Dr. Parks said some years ago he ascended Monte Rosa, and when near the summit, in the midst of a flurry of wind and snow, had an attack of dyspnœa and other disagreeable feelings, which all passed away on reaching the summit.

Prof. von Schlagintweit said these symptoms were not usually felt on the Alps, which were only on the confines of the elevation at which these symptoms were likely to occur. They might be felt in an exceptional case, in a storm as in Dr. Parks's experience, or by people of highly nervous temperaments.

Why should this influence show itself at so much lower an elevation among the Andes than in the Alps or elsewhere? whole villages live in Asia at the height of 10,500 feet above the level of the sea. The inhabitants are robust, with well-developed chests; their stature is somewhat less than that of Europeans or Americans, but their strength is enormous, that of the women as well as the men. The diet varies with the race, some living on vegetable, some on animal food alone. The Hindoos live principally on rice; they also make use of an intoxicating liquor made of millet.

Animal traces are found at very great heights; the yak (Bos grunniens) at 19,400 feet, wild horse (Kyang) and several species of wild sheep and ibex at 18,600, but very few birds.

As to the diseases: in Thibet we find goitre but seldom, while it is common in some Himmalaya valleys; rheumatism is very common, as is also constipation; smallpox causes fearful ravages in Thibet; no apoplexy; no phthisis, but, on the contrary, consumptives find great relief in these high altitudes. Prof. von Schlagintweit anticipates happy results from the study of the hygiene of high regions.

Medical and Surgical Journal.

Boston: Thursday, December 31, 1868.

THE ABUSE OF ATHLETIC GAMES.

The same spirit of misdirected emulation which is the pest of our school system, has invaded a most wholesome public movement towards the cultivation of manly sports. The starved muscles and hypertrophied brains of our school-children seemed about to experience some restoration of the healthy balance of the faculties by a resort to exercise and out of door amusements. But, unfortunately, the same over-stimulated desire to excel, which converts the one into a precocious mental dwarf, drives the other to an expansion of bone and muscle beyond its natural growth. Pedestrians, oarsmen, base-ball players and match skaters, run to as great extremes and with as bad effects, as the phenomena of the schools who scan a Greek Idyl, and ignore the existence of Burns and Goldsmith; or measure the orbit of Uranus, but miscount the fractions in the simplest calculations of every-day life. He who walks, must walk for a wager; he who rows, must train for a prize; he who plays ball, must dislocate his fingers or break his nose in the false ambition to outdo his antagonist, while girls over-strain their slender ankles, and possibly derange the pelvic organs by emulous rivalry beyond their strength, either on skates with the mercury at zero, or in the crowded German, in a temperature of eighty-five degrees.

Neither time nor courage avail us to assail that compound evil of our school system alike defended by committees, teachers, parents and scholars, but secretly deprecated by all.

But as mentors of the public health we would say a word on the abuse of athletic games.

It has been a subject of general congratulation of late years, that somewhat of English customs in out of door sports was beginning to manifest itself among us, to the obvious physical advantage of our youth.

It was noticeable that the present generation of town-bred boys and girls, was not only rosier, stronger and manlier than the one before it, but even surpassed the average of country children in vigor. No one has been a warmer advocate of the use and pursuit of exercise than our own profession. We object only to its abuse.

The period of adolescence is the period of natural growth, but it is also easily overstrained and perverted. The war proved this; for many a young soldier, whose epiphyses were yet green and weakly soldered, broke down with joint diseases after protracted marches.

It cannot be a matter of doubt that like injury may follow excessive gymnastics, rowing or walking. Parts which are growing, are unfinished and weak.

If we do not give nature time to complete her work, but make demands on her, which only the mature man can fulfil, we surely defeat our object of promoting physical development. The child, left to itself, runs, plays, climbs, falls, with impunity, because it rests when it is tired, and stops when exhausted. So should the youth who seeks for muscular strength. But in the gymnasium, on the ball-ground, or in the wherry, he forgets fatigue in excitement, and he overdoes his muscles and his nervous power. The result is prostration, and not strength. He seeks to keep up his flagging powers by an absurd system of training, so called, where he is subjected to the caprice of certain physical sages, ignorant of physiology and of hygiene.

No college boy can rival the fisherman at the oar, permanently, because the latter has been in slow and gradual training all his life. Muscular growth, stiffening of bones, toughening of fibre and fascia must come slowly, in order to last. Only in the steady physical laborer can we find that harmonious development which combines strength, wind and endurance. We make a mistake if we expect to attain it in three months. For one part is then developed at the expense of another, and either the joints, the lungs, the heart, or the spinal system suffer in the unequal struggle.

We would by no meams be classed with those who would restrain either sex from out of door pursuits. We would drive every boy and girl into the open air several hours a day. We would say, row, walk, swim, skate, and play every hardy game. But do so reasonably, and do not seek to make them the business of life, by a few weeks' pursuit. Make haste slowly. Give your limbs time to rest, and they will grow.

If you want to become an athlete, follow the trade of the fisherman, or the day-laborer, or the organ-grinder. If you have other aims in life, and mean to use your minds as well as your bodies, give time and cultivation to both, at due intervals. But do not expect that you can over-develop the one without dwarfing the other. Intellectual culture alone will make you a nervous, unbalanced, precocious man. Physical culture alone will make you as strong as the hod-carrier—and as dull.

Abstract of a Lecture on the Therapeutics of Wakefulness: Delivered at Bellevue Hospital Med. College, by William A. Hammond, M.D.—Brushing the hair, or friction of the skin, as by rubbing the palms of the hands or the backs of the arms, will in some persons tend to induce sleep. Soothing sounds have sometimes a similar effect. On the other hand, persons whose occupations are noisy are apt to awake when the noise to which they are accustomed suddenly ceases. A miller has been known to wake up when the noise of the machinery stopped, and a man, who had for many years lived within sound of the roaring of Niagara Falls, was unable to sleep at first on removing from the locality.

But agents more efficacious than such external ones, are those which lessen the amount of blood circulating in the brain. First may be mentioned food and drink, of whose happy influence a frequent illustration is given in the case of a late supper. During digestion more blood circulates through the gastro-intestinal vessels than when the abdominal organs are unemployed; and this additional amount of blood must come from some other part of the body, since a marked excess of this fluid cannot exist in two different parts at the same time, except in cases of disease. That the amount of blood in the brain is diminished during digestion is evinced by the feeling of drowsiness commonly experienced, which is a perfectly healthy sensation. The food, thus taken as a therapeutic agent, should be easily digestible. The sensible physician will hardly resort to drugs, if such pleasant medicine as a good supper can be given with equally good effect.

In persons weak or anæmic, especially women who have been rendered so by hæmorrhages, a dose of some one of the various preparations of alcohol at bedtime is frequently advisable. Of these, wines are not generally so admissible as the stronger preparations, such as spirits; in this country whiskey will be most easily attainable. A Methodist clergyman, who came under my care, had been unable for seven or eight weeks to sleep more than two hours each night. I prescribed a dose of whiskey to be taken at bedtime. He at first strongly protested against taking it, upon grounds of principle and his previous habits of total abstinence, but finally agreed to try the remedy. The first night he slept five or six hours; the second, seven or eight hours: his whiskey was then reduced in amount gradually, from half a glassful to none at all. He continued to sleep well, and had not formed any habit of drinking.

In healthy persons, coffee is calculated to produce wakefulness; in others it acts as a hypnotic, much as other stimulants do in asthenic cases. For the latter purpose, do not trifle with it by administering a little of a weak infusion, but give strong doses at once. Much depends upon the method of making it. Exhaust the strength of three or four ounces of ground coffee by percolation, with a rather small amount of boiling water; and give without milk or cream. Tea is not to be compared with coffee as a therapeutic agent, in this connection. It acts in a similar manner, but not so efficiently.

Sometimes sleep may be produced by physical exercise taken regularly about two hours before bedtime. This acts best in sthenic cases. It has been often noticed that change of air and carriage exercise produce sleep. The modus operandi of this I cannot explain, more than the familiar fact that the rocking of a cradle puts an infant to sleep.

Some time ago, in England, there was constructed a table, known as Darwin's table, for the purpose of producing sleep in the insane. It was circular, and rotated upon a screw at the centre. On this the patient was placed, with his head at the centre, and the table was turned, thus producing sleep according to correct physiological principles, although those principles were not then known.

The warm bath may be used as a hypnotic. In employing it, the head should be prevented from becoming heated, as by putting cold water upon it while the body is immersed; the application of cold water is, however, rarely necessary in the case of infants. The temperature of the bath is best regulated by the hand. Sometimes cold water alone applied to the head proves sufficient, without the warm bath. I remember having read somewhere in Graves's writings that the Indian women sometimes put their babies to sleep by giving their heads a cold douche; this was also applied in the British army at one time as a punishment, and, it was found, with the almost invariable effect of producing sleep.

Another remedy, often of much value, is the application of a sinapism to the epigastrium. How it acts I do not know; it cannot well do so through the circulatory system, but may by impression upon the nervous system.

The position of the body is important. In many cases, holding the head down produces wakefulness; such persons should, in case of wakefulness, go to sleep in the erect position.

Certain drugs form another class of agents for the production of sleep. That which has been longest in use is opium. As regards its power of bringing on sleep, the dose of opium varies in different patients. In small doses of half a grain to three-fourths, as an average, it acts as a stimulant; in moderate doses of one or two grains, it is hypnotic; and in larger ones it produces stupor, and not true sleep. Narceine, one of its constituents, has been found to produce profound and continuous sleep, but the ordinary preparations of it are too uncertain to be relied upon, and it is too expensive for frequent use.

Hyoscyamus sometimes acts excellently; it has the advantage over opium of not producing headache and constipation the following day. The tincture, especially Neergaard's, may be given in doses of a drachm to a drachm and a half three times a day, if necessary.

Oxide of zinc may prove serviceable in some cases. It came into use in the treatment of the nervous condition preceding delirium tremens. It has also been of value in hysteria when everything else has failed. Its dose is, as a maximum, two grains three times a day; as much as four grains may be given at the same intervals, but this quantity will generally produce irritability of the stomach.

Phosphorus is a remedy which has come into use more recently, in the class of cases of which we are speaking. It is supposed to act by supplying a deficiency in the elements of nervous tissue, increasing the amount of protagon. Owing to its chemical properties, it is not easily administered. It can be given in the form of phosphorated olive oil, in the proportion of four grains to the ounce. It is preferable, however, to boil twelve grains of phosphorus in one ounce of almond oil, and filter. The oil absorbs four grains of phosphorus, so that each minim contains 1-120 of a grain. Half an ounce of the oil is now mixed with an ounce of gum arabic, and fifteen drops of some aromatic oil are added. Of this mixture the dose is fifteen drops, equal to five drops of the phosphorated oil, and containing 1-24 of a grain of phosphorus. I have used this remedy in eight cases with success, and failed in two cases. I try to get three doses taken before bed-time, and thus far have succeeded in producing the desired effect on the second day, if I had not on the first. The dose may be increased a drop a day till twenty drops are taken, or signs of gastric irritation supervene. I would not advise giving it in larger doses. In one of my cases, nausea was produced on reaching twenty drops, but sleep ensued also.

But of all the sleep-producing agents at our disposal, the bromide of potassium is most deserving of the name of hypnotic. I have never seen it fail when given in sufficient quantity. A healthy adult may take from twenty to thirty grains three times a day; the latter dose is not too large when it is needed at all. Sometimes it produces, among its other effects, great weakness in the legs, and a staggering gait, strongly resembling that of a person intoxicated with alcohol. In fact, I know of a gentleman who, while under the influence of this drug, was twice arrested in our streets for drunkenness. Bromide of potassium occasionally produces also great lowness of spirits and a disposition to cry. It should be administered very much diluted. It may be conveniently prescribed one ounce to four ounces of water; a drachm dose of this is to be given in at least half a tumblerful of water.

A remedy which I have used recently, especially in cases of nervous excitement where a sedative seemed indicated, is sumbul. This is a plant of the same family as valerian. I have used it in conjunction with bromide of potassium in epilepsy, with the result, as I think, of increasing the effect of the latter. The dose of the fluid extract (Neergaard's) is from twenty drops to a drachm three times a day.—*Medical Record.*

A Human Tripod.—This case will be read with interest in connection with the account of the remarkable monstrosity published in the October number of this journal. The case in question is reported by an anonymous correspondent of the *Lancet*.—*New York Medical Journal.*

Blanche Dumas was born at Ségry, of perfectly healthy parents, who had already had two healthy children, and nothing special was noticed during the pregnancy of the mother which resulted in the birth of this monstrosity. The child is fairly grown for her age, and appears acute and sensible. When dressed, the most remarkable feature is the great width of the pelvis, and the fact that the left foot is clubbed, which, however, does not prevent the child walking with facility. On closer examination, it appears that there are two pelves fused in the median line, and that in connection with these there are *two pairs* of lower limbs. The right leg of the right pelvis is perfectly developed, but the left leg is quite rudimentary, being represented only by a nodule of fat. Both limbs of the left pelvis are fairly developed, and are both club-footed. It is the left of this pair that is used in progression, the right being twisted in front of the other, and not reaching the ground. The development of the genital organs is most remarkable. In the normal position on the left side there are female genitals, urethra, and anus complete. On the right side there are genitals and urethra, but no anus, there being merely a depression in the skin at the point. The child micturates through both urethras, and evacuates the bowels by the single anus. In addition, however, to these female genitals, there is at the junction of the pelves, and at the posterior part, a well-formed penis, and below this is a cicatrix, resulting, as the mother says, from some operation performed in Paris, by which a scrotum which existed at birth was removed. The penis was so sensitive that examination was not permitted; but, as at birth the child micturated by some orifice in connection with it which is now closed, I imagine that there must have been an hypospadiad opening which the operation has successfully closed. The child now wears a sort of bandage to support the part, and no urine passes.

The child has been exhibited in Belgium and France, and has been examined by various medical men of eminence. Professor Crocq, of the University of Brussels, regards the deformity as an instance of interposition of an abnormal pelvis between the bones of the natural pelvis. Professor Schwrann, of Liège, on the other hand, regards the deformity as an instance of double pelvis, classing it in the category of double monsters (*autosités non par parasites*) of M. Geoffroy Saint-Hilaire. This latter view appears to be borne out by the arrangement of the toes of the supernumerary leg, which shows it to be a right limb, and to belong, therefore, to the left pelvis.

I may remind the readers of *The Lancet* of the remarkable case of the Portuguese youth described at length in that journal of July 29, 1865, who exhibited the curious malformation of a third lower limb with double male genital organs well developed.

Precocious Maternity.—The *Lancet* lately called attention to a case of maternity in a girl under 11 years of age, as probably unique. We have learned of a mother in San Francisco nearly as young. She was of Spanish descent and Mexican birth; in good social position; married at the age of about ten years and three months; delivered of a healthy female infant within a year afterwards. Our informant, an old and intimate friend of the young matron, states that at this age she appeared as mature as an American girl of seventeen. He had heard of another case as remarkable, but had no personal acquaintance with the parties.—*Pacific Med. Jour.*

Street Cleaning in London, England.—The sum of $500,000 is annually expended in cleaning the streets of London. A composition made in the proportion of from half a pound to a pound of the mixed chlorides of calcium and sodium to a gallon of water, has been successfully tested. With this mixture the streets are sprinkled, and as these mixed chlorides retain moisture for a long time, the mud does not readily dry and become dust.

Dr. Cohnheim, Virchow's assistant in Berlin, has been appointed Professor of Pathological Anatomy at Kiel; Dr. Hermann, of Berlin, professor at Wurzburg; and Dr. Fischer, of Berlin, professor of Surgery at Breslau.

Dr. Ahrouheim (*Deutsche Klinik*) presented before the Berlin Medical Society, on March 30th, 1868, two cases of chronic salivation in children, caused by the careless application of ungt. hydrarg. to their bedsteads for the destruction of vermin.

No less than forty-seven persons died of hydrophobia in the Grand Duchy of Hesse-Darmstadt, in 1867.

Selections and Medical Items.

Morbus Coxarius. — Dr. Hamilton showed the specimen at a recent meeting of the New York Pathological Society. The patient presented himself at Bellevue Hospital a year ago, in the first stage of hip disease, and was treated by Dr. Sands with extension. In consequence of this treatment the phenomena usually representing the second and third stages were never presented. Three months ago, pus discharged through an opening on the upper and outer portion of the thigh. At the time he came under Dr. Hamilton's notice, he was walking about the ward on crutches, complaining only of the annoyance of the discharge. The motion of the limb was then moderate, and he was able to move the hip-joint to an angle of 15°. After having been in his service a month or more, Dr. H. thought it proper to ascertain whether the discharge was due to hip disease or to necrosis of the shaft. A consultation was called, and as a result of the comsultation it was determined to make an explorative incision. Accordingly, in presence of several of the consulting surgeons, the opening already existing was enlarged, when it was found that the sinus passed around the bone posteriorly. It being impossible to explore with the finger, a strong metallic probe was bent and carried around until it struck dead bone in the neighborhood of the anterior inter-trochanteric line. The impression then was, with all of the gentlemen present, that the disease was entirely extra-capsular. It was determined, therefore, only to make a counter-opening for the freer exit of matter. The patient returned to his ward, but in the course of four or five days an abscess commenced forming in the areolar tissue of the thigh, and in about a fortnight he died.

The autopsy showed that the head of the bone, with its neck, had disappeared, save a very small portion of the former, which had so lodged in the original socket as to allow the motion of the hip without production of pain. From the posterior inferior lip of the acetabulum a broad osteophite projected, against which the posterior margin of the trochanter major rested; between these two surfaces was interposed a thin lamella of bone which was movable, thus forming a double artificial joint, and upon this all the motions which were observed before death had been performed.—*New York Medical Record.*

Gun-shot Wound Healed by the First Intention.—By Wm. M. Findley, M.D., of Altoona, Pa.—Having noticed in the *British and Foreign Medico-Chirurgical Review* for April last, page 512, an account by Prof. Simon of the healing of penetrating wounds (gunshot) by the first intention, it has appeared to me that the following case of gun-shot wound involving both bone tissue and soft parts, which was followed by the same result, may be worth recording:—

Mr. A. K., German, middle aged, good health, in handling a small pocket pistol, which he did not know was loaded, accidentally discharged one barrel; the ball, called by sportsmen a double B, passed directly through from the palmar to the dorsal surface of the proximal phalanx of the little finger on the right hand, lodging somewhere in the room. The wound was compound and comminuted, both; the phalanx being broken off and each fragment split up some distance; very little hæmorrhage; no vessel of any importance was wounded. Saw it immediately, and ordered warm water dressings, which were kept constantly applied for some ten days. It progressed favorably, and the external wound cicatrized, and during this entire time neither myself nor the gentleman saw one drop of pus or any discharge, except a little blood the first day or two. This occurred in April last, and at the present writing the finger is "as good as ever," he says, except that it is about one-third thicker than the corresponding one, but the excessive callus is being rapidly absorbed. The joint between the first and second phalanges is somewhat stiffened.—*Am. Jour. of Med. Science.*

New York State Woman's Hospital.—The annual meeting of the Governors and Supervisors of this institution was held on the 17th of November. Besides the business transactions, speeches were made by Dr. J. Marion Sims and the Rev. Dr. Bellows. This hospital is said to be one of the finest in the country. Dr. Thomas Addis Emmet is Surgeon-in-chief, and the consulting physicians and Surgeons comprise some of the most eminent in the city.

MEDICAL DIARY OF THE WEEK.

Monday, 9, A.M., Massachusetts General Hospital, Med. Clinic. 9, A.M., City Hospital, Ophthalmic Clinic.
Tuesday, 9, A.M., City Hospital, Medical Clinic; 10, A.M., Medical Lecture. 9 to 11, A.M., Boston Dispensary. 10-11, A.M., Massachusetts Eye and Ear Infirmary.
Wednesday, 10 A.M., Massachusetts General Hospital Surgical Visit. 11 A.M., Operations.
Friday, 9, A.M., City Hospital, Ophthalmic Clinic; 10, A.M., Surgical Visit; 11, A.M., Operations. 9 to 11, A.M., Boston Dispensary.
Saturday, 10, A.M., Massachusetts General Hospital Surgical Visit; 11, A.M., Operations.

To Correspondents.—Communications accepted:—Ligature of the Lingual Artery—Vertigo and Disease of the Ear—Arnica Montana.

Books Received.—Part V. Cullerier's Atlas.—Klob's Pathological Anatomy of the Female Sexual Organs.

Married,—In this city, 25th inst., Nathan S. Chamberlain, M.D., of Marlboro', to Miss Antonia Harvey, of Boston.—At Wiscasset, Me., 15th inst., Alexander J. Stone, M.D., of Boston, to Miss Helen S. Sewell.

Deaths in Boston for the week ending Saturday noon, December 26th, 83. Males, 44—Females, 39.—Accident, 5—congestion of the brain, 1—disease of the brain, 1—bronchitis, 4—cancer, 1—consumption, 11—convulsions, 1—croup, 6—debility, 3—diphtheria, 2—dropsy, 2—dropsy of the brain, 2—erysipelas, 3—scarlet fever, 5—typhoid fever, 1—gangrene, 1—disease of the heart, 6—disease of the kidneys, 1—disease of the liver, 2—congestion of the lungs, 1—inflammation of the lungs, 7—marasmus, 2—old age, 3—peritonitis, 1—pleurisy, 1—puerperal disease, 1—scrofula, 1—tumor, 1—whooping cough, 2—unknown, 5.

Under 5 years of age, 37—between 5 and 20 years, 8—between 20 and 40 years, 11—between 40 and 60 years, 15—above 60 years, 12. Born in the United States, 67—Ireland, 13—other places, 3.